

We Claim:

1. A method for adjusting process parameters for at least one plate-shaped object in a processing tool, the plate-shaped object having experienced at least one preceding processing step performed by one processing device out of at least one set of processing devices, an adjustment in the processing tool being controlled by a control unit, which comprises the steps of:

providing the plate-shaped object to the processing device;

processing the plate-shaped object;

generating a tag associated with the plate-shape object and representing a processing parameter offset of the processing device used in the processing step;

transferring the tag to the control unit;

transferring the plate-shaped object to a metrology tool;

performing at least one measurement selected from the group consisting of a critical dimension measurement and an overlay measurement;

forwarding metrology results of the measurement to the control unit;

transferring the plate-shaped object to the processing tool;

calculating a new set of values of the process parameters in response to the metrology results and the tag;

adjusting the processing tool using the new set of values of the process parameters resulting in adjusted process parameters; and

performing a process step on the plate-shaped object in the processing tool using the adjusted process parameters.

2. The method according to claim 1, which further comprises:

adjusting a first plate-shaped object associated with a first tag with a first set of values of process parameters; and

adjusting a second plate-shaped object associated with a second tag with a second set of values of process parameters, the second set of values being different from the first set of values.

3. The method according to claim 1, which further comprises:

providing a semiconductor wafer as the plate-shaped object;

providing a lithographic tool as the processing tool; and

performing the processing step as at least one of a chemical mechanical polishing step, an etching step, a chemical vapor deposition step, a diffusion step, a wet processing step, and a thin film deposition step.

4. The method according to claim 1, which further comprises performing the calculating step using fuzzy logic rules.

5. The method according to claim 1, which further comprises performing the calculating step using a neuronal network.

6. The method according to claim 1, which further comprises:

storing, using the control unit, the adjusted process parameters as an entry in a database, the database containing for each plate-shaped object at least an individual plate-shaped object identification, a processing device number, and adjusted values of the set of process parameters; and

performing the calculating step, in the control unit, from information stored in the database.

7. The method according to claim 3, which further comprises setting the process parameters to be adjusted for the semiconductor wafer previously processed in the processing device to be at least one of an exposure dose, alignment settings, and focus channels of a lithographic tool.

8. The method according to claim 3, which further comprises structuring patterns on a surface layer of the plate-shaped object having a minimum resolution width of less than 0.25  $\mu\text{m}$ .

9. The method according to claim 1, which further comprises selecting the processing devices from the group consisting of processing tools, processing chambers of a processing tool, and processing heads for holding the plate-shaped object in the processing tool.